The SPIRAL

NOTE BOOK

No. 35

WESTAB

Made Under One or More of The Following SPIRAL Patents 1516932-1942026-1985776. Other Patents Pending.

U.613

Stop 9 - Floodplain
Ft. Snelling Br.
- dredged sand.
- loess / Platteville
Grasses, H. pl. plants
Trees: Acer saccharinum
P. deltoides
Salix longifolia

Stop #10 - natural
levee - higher terrace -
same as #9
Trees - Ulmus americana
Acer saccharinum
" negundo
Butternut - + Tilia
Cottonwood

fowl weed
red common nettle
white snakeroot
golden glow - Kiles

Fox Grape -
(Vitis vulpina)

Cercis canadensis
J. virginiana
Paper birch
white pine

Sta #11 - S. W. [illegible]
Steep slope near #9.
Bluff east side of Ravine
Gravel pit.
Trees - Bur oak - (scattered)
Juniperus virg - Hackberry -
2 Elms - alb minor.
Shrubs - Symphoricarpos
Rhus glabra - (Prickly ash.)
Wahoo. - Amelanchier,
choke cherry -
Herbs - P amicum virgatum (P
Andropogon furcatus (P)
" scoparius (P)
Muhlenbergia sylvatica (P)
" sp. (P.)
Elymus canadensis (P.)

Boutelouea curtipendula (P.
Aster ericoides (P.)
" oblongifolius (P.)
Solidago rigida (P.)
Baltonia (P.)
Helianthus maximiliani (P.)
" scaberrimus (P.)
Petalostemon purpureum (P.)
Anemone cylindrica (P.)
Potentilla arguta (P.)
Artemisia frigida (P.)
Monarda mollis
Lithospermum sp. (P.)
Amorpha canescens (P.) half shrub

Cliff succession above

10-13-41 A. C.

Station 12 - Coon Creek.

- Con level is Valley train (deposit made by river flowing out from the ice). ~~N~~

~~N~~ side of creek terrace fragment of Upper Terrace

S. side of Creek - Lower terrace ca. 8000 years - Rock forming St. Anthony Falls an obstruction causing present level.

- Lower terrace Trees

1 Black Green Ash

2 Ulmus americana & fulva

Q macrocarpa - T. americana

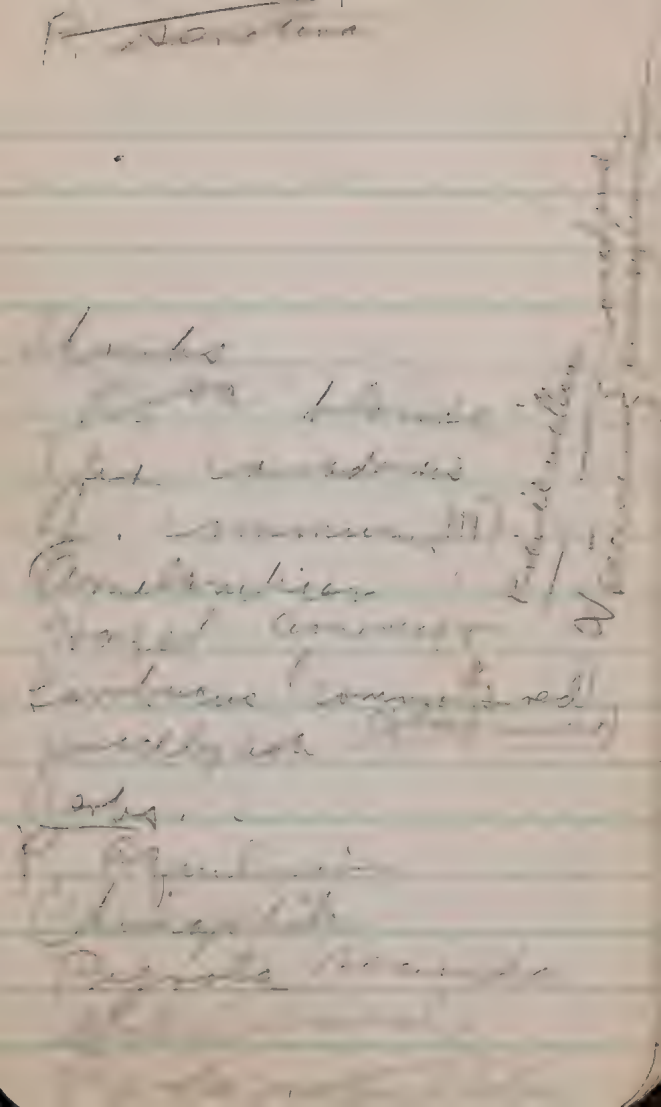
P. Acer saccharinum

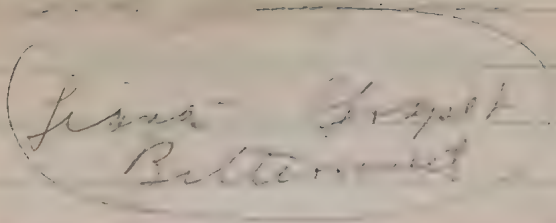
Butternut

Shrubs .. ? + cenarpita
Ribes americanum Sambucus
Spiraea acerifolia racemosa
Xanthox
Cornus stolonifera
Tilias Menispermum
Cornus paniculatus
Alnus.

Herbs - Saxifraga
Rud Lacinata
Osmorrhiza Claytonia
Anemone
Carex
Viola pubescens
Hydrastis canadensis
Leptandra - Impatiens

Ferns - Adiantum pedatum
Aquilegia herbacea Acanthus
Calliphyllum thalictroides
Solidago Ptarmicoides
Helianthus Grandiflorus
Physalis acyclobola
Aster cordifolius
Allium tricoccum
Solidago
Asarum
Fragaria and orchis
Viola pubescens
Sanicula
Anemone Virginiana
Aster patens





Lta +12 J
Jaka Bg ...

(...)
Andromeda
...
Cassiopeia ...
Perseus
Fuhrmann
Schwan ...
Pegasus
Eridanus

Pa #13

Victor

Cornus P. [illegible]

Q. [illegible]

borealis

Popp. Grand.

Red maple on border

Black cherry

Ulmus

Viburnum [illegible]

L. Canadensis

Common elder

Hamamelis

Cornus Canadensis

O. Lerbs.

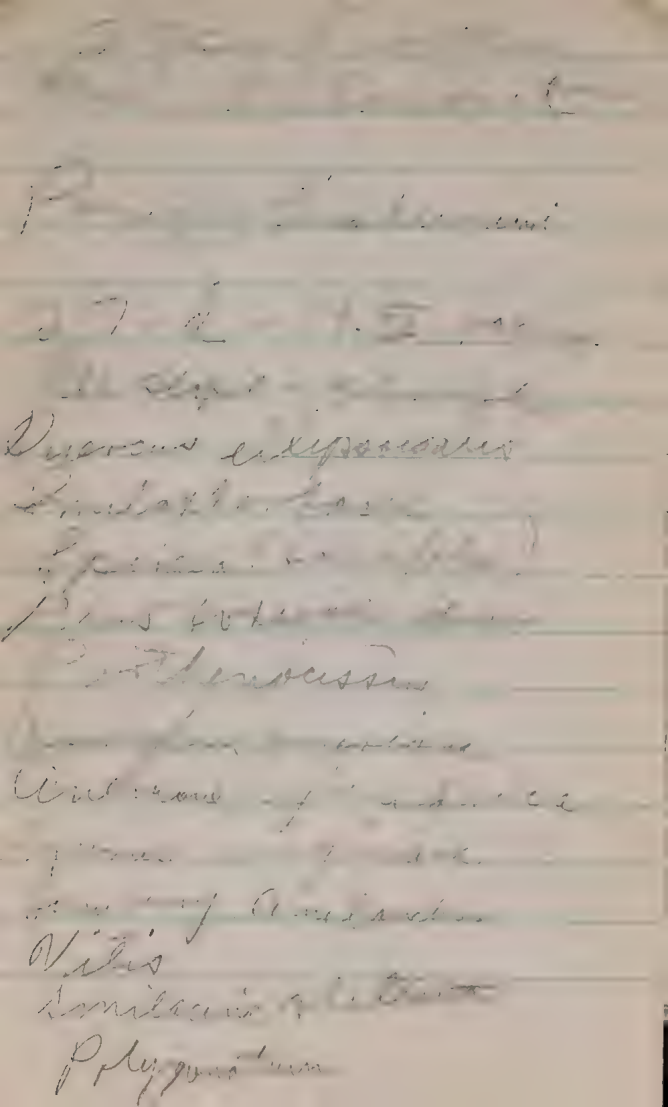
Coptis

[illegible]

Clintonia N.

[illegible]

Tall Grass prairie.



St. Croix moraine (red drift) forms greater hills. middle Wisconsinan. + moraine of Minneapolis lobe of Patrician ice sheet. Relief of 200'-400'

Lesser hills are "sub-terminal" moraine of St. Croix

Intramorainic plain a thin relatively flat layer of till or ground moraine, formed by melting

of Glacial ice.
Till, Drift, Kame, Esker, Kettle

Drift - All deposits related directly or indirectly to glacial transportation.

Till - material deposited directly by ice - has no stratification - heterogeneous

Outwash - Material transported by streams of meltwater from the ice - contains stratification - bedding

clay.

Moraine - an accumulation of till - may have some bedrock sed.

End moraines may be terminal or recessional

Ground moraine - [illegible] till deposited in a thin sheet during rapid recession.

Kettle - an undrained depression in a moraine. most common in end moraine. May contain lakes.

1. Minnetonka compound kettle lake

Sedge-wool Swa.

Hylocomium splendens

Calliergon pulchellum

Dryopteris Thelypteris

Mnium affine

Sphagnum spp.

Polytrichum spp.

Cladonia spp.

Drepanocladus

Fruit zone of bog pools

Early [illegible]

of Ph.

Abies balsamea

Chionanthus virginica

Cornus florida

Liriodendron tulipifera

Rubus nubescens

Vaccinium corymbosum

" arboreum

" stamineum

Acer rubrum

Purin, C. M.

Stand. Germ.
L. C. of 2932 words
+ 1500 idioms.

free balloons to 24,2 m,
occupied " to 13.8 m.
Aeroplanes to 10.3 m.
Bombers to 29 700.

- 70.3 % nil.
20.46 % odour
.03 % CO_2 300 times as much CO_2 in each as in air.

H_2O from $\frac{1}{100}$ to $\frac{1}{40}$.

Streams often || to strike.

U. of Minn. Pub. Bot.
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Makrono Vol. 3

Decorah shale (mostly gla... finally removed)
upper. Iron stone thick beds
mid. shaly layer
lower. bluish, thin beds strong.
Platteville lstone
St. Peter ss stone, 150' th little bedd
Shakopee dolomite